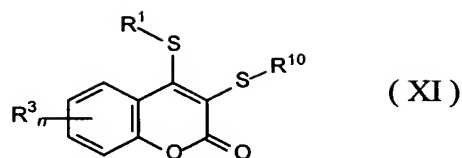


## CLAIMS

What is claimed is:

1. A compound of the formula XI:



wherein

$R^1$  and  $R^{10}$  are independently selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $C_1$ - $C_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $C_1$ - $C_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

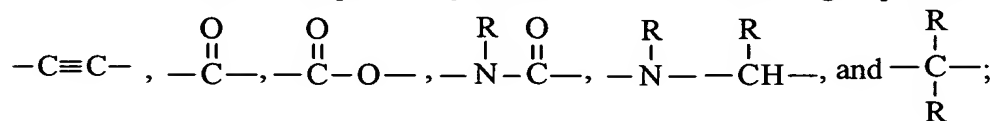
an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy;

$R^3$  is selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or  $R^3$  is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S,  $-CR=CR-$ ,



each R is independently selected from H or lower alkyl,

Z is selected from H,  $-\text{CO}_2\text{R}$ ,  $-\text{OR}$ ,  $-\text{SR}$ ,  $-\text{NR}_2$ ,  $-\text{NH}\overset{\text{O}}{\parallel}\text{COH}$ , and  $-\text{NH}\overset{\text{O}}{\parallel}\text{C}-\text{CH}_2\text{OH}$ ;

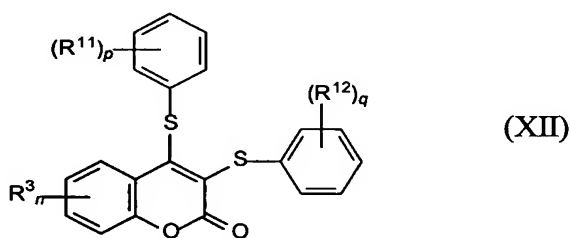
a, c and e are independently selected from values from 0 to 10;

b and d are independently selected from 0 and 1, provided that when  $a=0$  then  $b=0$ , and when  $c=0$  then  $d=0$ ;

or  $\text{R}^3$  may occupy two adjacent positions to form a fused aromatic ring; and

n is selected from values between 0 and 4.

2. A compound of claim 1, having the formula XII



wherein

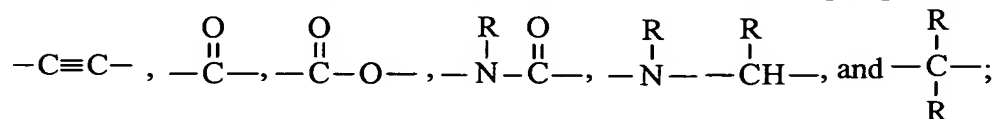
each  $\text{R}^{11}$  is independently selected from halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $\text{C}_1\text{-C}_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

each  $\text{R}^{12}$  is independently selected from halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $\text{C}_1\text{-C}_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

$\text{R}^3$  is selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or  $\text{R}^3$  is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S,  $-\text{CR}=\text{CR}-$ ,



each R is independently selected from H or lower alkyl,

Z is selected from H,  $-\text{CO}_2\text{R}$ ,  $-\text{OR}$ ,  $-\text{SR}$ ,  $-\text{NR}_2$ ,  $-\text{NH}\overset{\text{O}}{\parallel}\text{COH}$ , and  $-\text{NH}\overset{\text{O}}{\parallel}\text{C}-\text{CH}_2\text{OH}$ ;

$a$ ,  $c$  and  $e$  are independently selected from values from 0 to 10;

$b$  and  $d$  are independently selected from 0 and 1, provided that when  $a=0$  then  $b=0$ , and when  $c=0$  then  $d=0$ ;

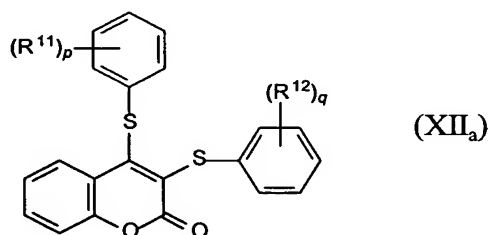
or  $\text{R}^3$  may occupy two adjacent positions to form a fused aromatic ring;

$n$  is selected from values between 0 and 4;

$p$  is selected from values between 0 and 5; and

$q$  is selected from values between 0 and 5.

3. The compound of claim 2, having the formula XII<sub>a</sub>:



wherein

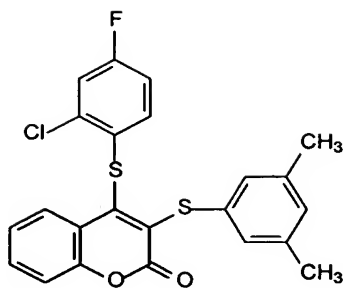
each  $\text{R}^{11}$  is independently selected from halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $\text{C}_1\text{-C}_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

each  $\text{R}^{12}$  is independently selected from halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $\text{C}_1\text{-C}_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

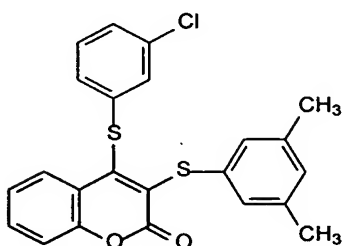
$p$  is selected from values between 0 and 5; and

$q$  is selected from values between 0 and 5.

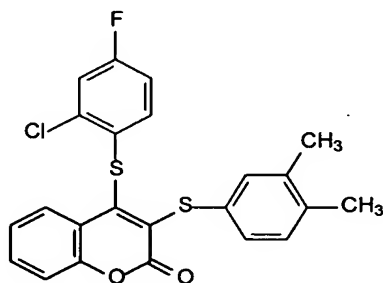
4. The compound of claim 3, having the formula



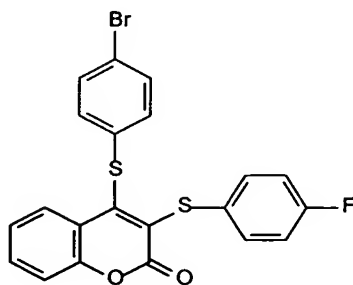
5. The compound of claim 3, having the formula



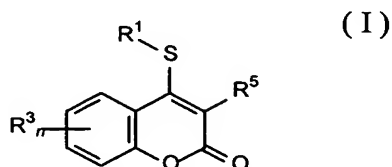
6. The compound of claim 3, having the formula



7. The compound of claim 3, having the formula



8. A method of treating HCV infection in a human comprising administering a therapeutically effective amount of a compound of Formula I



wherein

R<sup>1</sup> is selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

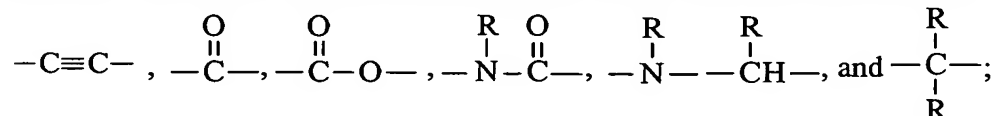
an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy;

R<sup>3</sup> is selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or R<sup>3</sup> is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S, -CR=CR-,



each R is independently selected from H or lower alkyl,

Z is selected from H, -CO<sub>2</sub>R, -OR, -SR, -NR<sub>2</sub>,  $-\text{NH}\overset{\text{O}}{\parallel}\text{COH}$ , and  $-\text{NH}\overset{\text{O}}{\parallel}\text{C}-\text{CH}_2\text{OH}$ ;

$a$ ,  $c$  and  $e$  are independently selected from values from 0 to 10;

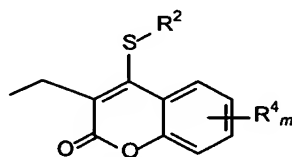
$b$  and  $d$  are independently selected from 0 and 1, provided that when  $a=0$  then  $b=0$ , and when  $c=0$  then  $d=0$ ;

or  $R^3$  may occupy two adjacent positions to form a fused aromatic ring,

$n$  is selected from values between 0 and 4;

$R^5$  is selected from hydrogen, lower alkyl, lower alkenyl, lower alkynyl, lower aralkyl, aryl, thioalkyl, thioaryl, and thioaralkyl,

each of which may be unsubstituted or substituted with one or more substituents selected from halogen, lower alkyl, and lower alkoxy, thio-lower alkyl,  $C_1$ - $C_8$  acyl, lower alkyl ester, amide, and lower alkyl amide; or  $R^5$  may be a group of the formula



wherein

$R^2$  is selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $C_1$ - $C_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl,  $C_1$ - $C_8$  acyl, lower alkyl ester, amide, and lower alkyl amide;

an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy;

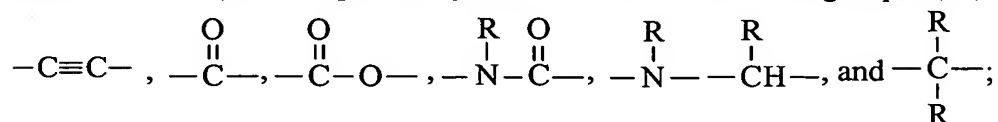
$R^4$  is selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl,

and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and

lower alkoxy; or R<sup>4</sup> is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S, -CR=CR-,



each R is independently selected from H or lower alkyl,

Z is selected from H, -CO<sub>2</sub>R, -OR, -SR, -NR<sub>2</sub>,  $-\overset{\overset{O}{\parallel}}{N}HCOH$ , and  $-\overset{\overset{O}{\parallel}}{N}HC-CH_2OH$ ;

a, c and e are independently selected from values from 0 to 10;

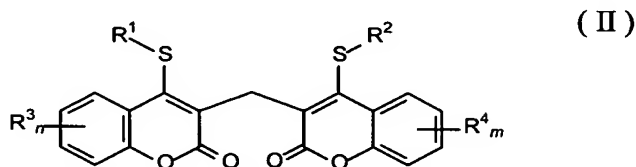
b and d are independently selected from 0 and 1, provided that when a=0 then b=0, and when c=0 then d=0;

or R<sup>4</sup> may occupy two adjacent positions to form a fused aromatic ring,

and, m is selected from values between 0 and 4,

in a pharmaceutically acceptable carrier.

9. The method of claim 8, comprising administering a compound of the formula II,



wherein

R<sup>1</sup> and R<sup>2</sup> are independently selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

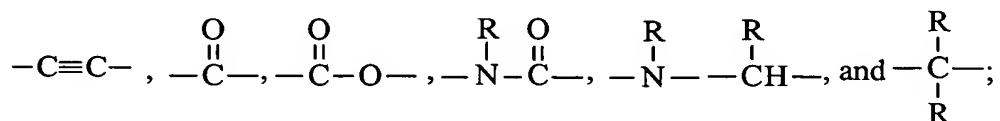
a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and each R<sup>3</sup> and R<sup>4</sup> is independently selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S, -CR=CR-,



each R is independently selected from H or lower alkyl,

Z is selected from H, -CO<sub>2</sub>R, -OR, -SR, -NR<sub>2</sub>,  $-\overset{\overset{O}{\parallel}}{N}HCOH$ , and  $-\overset{\overset{O}{\parallel}}{N}HC-CH_2OH$ ;

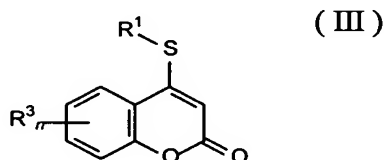
a, c and e are independently selected from values from 0 to 10;

b and d are independently selected from 0 and 1, provided that when a=0 then b=0, and when c=0 then d=0;

or R<sup>3</sup> or R<sup>4</sup> may occupy two adjacent positions to form a fused aromatic ring, and

n and m are independently selected from values between 0 and 4.

10. The method of claim 8, comprising administering a compound of the Formula III



wherein R<sup>1</sup>, R<sup>3</sup> and n are as described for the compound of Formula I.

11. The method of claim 10, wherein

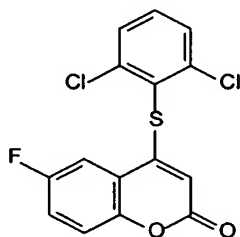
R<sup>1</sup> is selected from an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower



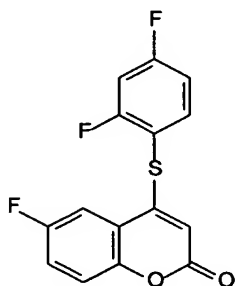
alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide.

12. The method of claim 11, wherein the unsubstituted or substituted aromatic group is an unsubstituted or substituted phenyl group.

13 The method of claim 12, comprising administering a compound having the formula



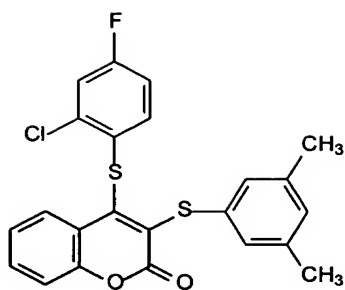
14. The method of claim 12, comprising administering a compound having the formula



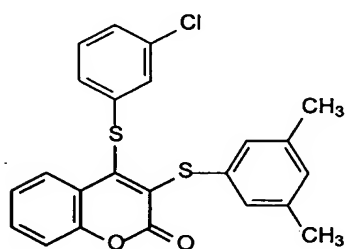
15. A method of treating HCV infection in a human comprising administering a therapeutically effective amount of a compound according to claim 1.

16. A method of treating HCV infection in a human comprising administering a therapeutically effective amount of a compound according to claim 2.

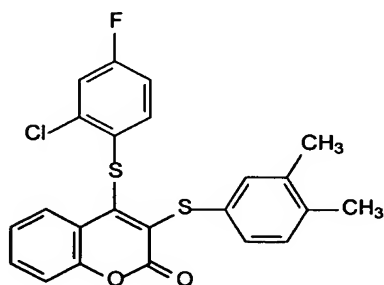
17. The method of claim 16, comprising administering a compound having the formula



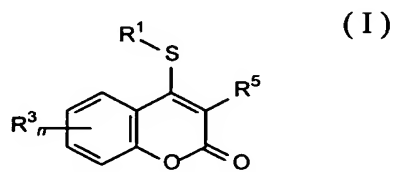
18. The method of claim 16, comprising administering a compound having the formula



19. The method of claim 16, comprising administering a compound having the formula



20. A pharmaceutical composition for the treatment of HCV infection comprising a therapeutically effective amount of a compound of Formula I



wherein

R<sup>1</sup> is selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

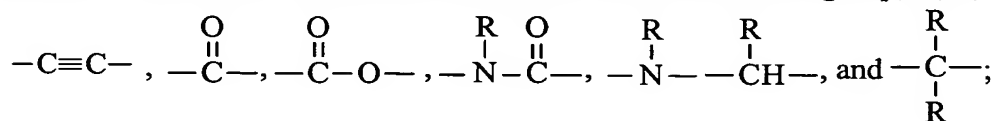
an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy;

R<sup>3</sup> is selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or R<sup>3</sup> is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S, -CR=CR-,



each R is independently selected from H or lower alkyl,

Z is selected from H, -CO<sub>2</sub>R, -OR, -SR, -NR<sub>2</sub>,  $-\text{NH}\overset{\text{O}}{\overset{||}{\text{C}}}\text{OH}$ , and  $-\text{NH}\overset{\text{O}}{\overset{||}{\text{C}}}-\text{CH}_2\text{OH}$ ;

a, c and e are independently selected from values from 0 to 10;

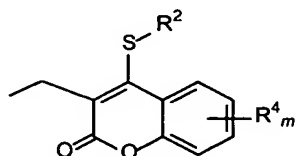
b and d are independently selected from 0 and 1, provided that when a=0 then b=0, and when c=0 then d=0;

or R<sup>3</sup> may occupy two adjacent positions to form a fused aromatic ring,

n is selected from values between 0 and 4;

R<sup>5</sup> is selected from hydrogen, lower alkyl, lower alkenyl, lower alkynyl, lower aralkyl, aryl, thioalkyl, thioaryl, and thioaralkyl,

each of which may be unsubstituted or substituted with one or more substituents selected from halogen, lower alkyl, and lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide; or R<sup>5</sup> may be a group of the formula



wherein

R<sup>2</sup> is selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

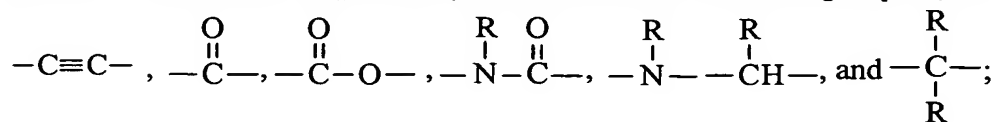
an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy;

R<sup>4</sup> is selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or R<sup>4</sup> is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S, -CR=CR-,



each R is independently selected from H or lower alkyl,

Z is selected from H, -CO<sub>2</sub>R, -OR, -SR, -NR<sub>2</sub>,  $-\text{NH}\overset{\text{O}}{\parallel}\text{COH}$ , and  $-\text{NH}\overset{\text{O}}{\parallel}\text{C}-\text{CH}_2\text{OH}$ ;

*a*, *c* and *e* are independently selected from values from 0 to 10;

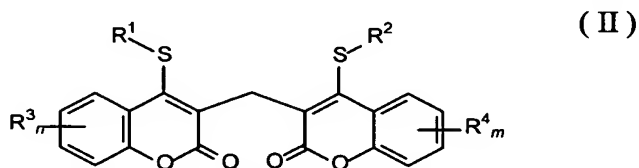
*b* and *d* are independently selected from 0 and 1, provided that when *a*=0 then *b*=0, and when *c*=0 then *d*=0;

or R<sup>4</sup> may occupy two adjacent positions to form a fused aromatic ring,

and, *m* is selected from values between 0 and 4,

in a pharmaceutically acceptable carrier.

21. The pharmaceutical composition of claim 20, comprising a compound of the formula II,



wherein

R<sup>1</sup> and R<sup>2</sup> are independently selected from

an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

a substituted or unsubstituted aralkyl group, wherein the substituted aralkyl group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide;

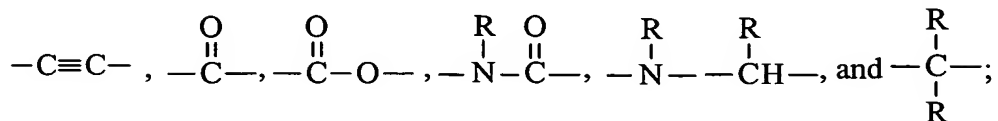
an unsubstituted or substituted alkyl group, wherein the substituted alkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

an unsubstituted or substituted cycloalkyl group, wherein the substituted cycloalkyl group may be substituted with one or more halogen, hydroxy, and lower alkoxy; and

each R<sup>3</sup> and R<sup>4</sup> is independently selected from halogen, hydroxy, amino, lower alkyl, lower alkoxy, lower alkenyl, and lower alkynyl, wherein the lower alkyl, lower alkoxy, lower alkenyl and lower alkynyl may be unsubstituted or may be substituted with one or more of halogen, hydroxy, and lower alkoxy; or is a group of the formula



wherein Y and Q are independently selected from an aromatic group, O, S, -CR=CR-,



each R is independently selected from H or lower alkyl,

Z is selected from H, -CO<sub>2</sub>R, -OR, -SR, -NR<sub>2</sub>,  $-\overset{\overset{O}{\parallel}}{N}HCOH$ , and  $-\overset{\overset{O}{\parallel}}{N}H\overset{\overset{O}{\parallel}}{C}-CH_2OH$ ;

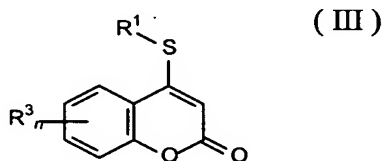
a, c and e are independently selected from values from 0 to 10;

b and d are independently selected from 0 and 1, provided that when a=0 then b=0, and when c=0 then d=0;

or R<sup>3</sup> or R<sup>4</sup> may occupy two adjacent positions to form a fused aromatic ring, and

n and m are independently selected from values between 0 and 4.

22. The pharmaceutical composition of claim 20, comprising a compound of the Formula III



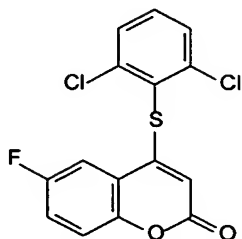
wherein R<sup>1</sup>, R<sup>3</sup> and n are as described for the compound of Formula I.

23. The pharmaceutical composition of claim 22, wherein

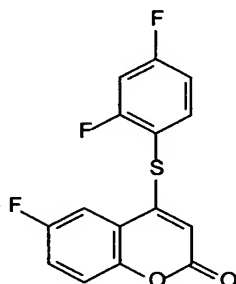
R<sup>1</sup> is selected from an unsubstituted or substituted aromatic group, wherein the substituted aromatic group may be substituted with one or more of halogen, hydroxy, lower alkyl, lower alkenyl, lower alkynyl, lower alkoxy, thio-lower alkyl, C<sub>1</sub>-C<sub>8</sub> acyl, lower alkyl ester, amide, and lower alkyl amide.

24. The pharmaceutical composition of claim 23, wherein the unsubstituted or substituted aromatic group is an unsubstituted or substituted phenyl group.

25. The pharmaceutical composition of claim 23, comprising a compound having the formula



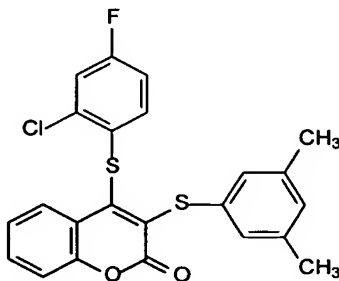
26. The pharmaceutical composition of claim 23, comprising a compound having the formula



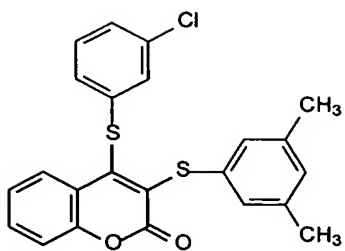
27. A pharmaceutical composition for the treatment of HCV infection comprising a therapeutically effective amount of a compound according to claim 1 in a pharmaceutically acceptable carrier.

28. A pharmaceutical composition for the treatment of HCV infection comprising a therapeutically effective amount of a compound according to claim 2 in a pharmaceutically acceptable carrier.

29. The pharmaceutical composition of claim 28, comprising a compound having the formula



30. The pharmaceutical composition of claim 28, comprising a compound having the formula



31. The pharmaceutical composition of claim 28, comprising a compound having the formula

